

EXHIBIT A

THE COSTS OF CLEAN WATER IN
HOOSICK FALLS: PRIVATE CIVIL
LITIGATION AND THE REGULATION OF
DRINKING WATER QUALITY

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Despite extensive statutory law and regulations governing drinking water quality in the United States, water-contamination crises have been a regular feature of the American news cycle in recent years, perhaps most notably in Flint, Michigan, but also in a disturbing number of localities across the United States, including the upstate New York town of Hoosick Falls. This Note uses the water-contamination crisis in Hoosick Falls as a case study to analyze why these apparent regulatory failings continue to persist. This case study reveals how scientific uncertainty, resource constraints, and the socio-political dynamics of public regulation in the drinking-water context limit public ex ante regulatory mechanisms' power to deter drinking-water contamination and to rebalance the equities disrupted when drinking-water pollution occurs. In Hoosick, private tort litigation has the potential to be a powerful vehicle for addressing such regulatory shortcomings, but its ability to do so will turn on whether courts are willing to be more flexible in their conceptions of legally cognizable harm. I argue that such flexible conceptions are justified and would serve a crucial dual purpose—bolstering pollution deterrence and providing a forum in which social costs not accounted for during the regulatory, industrial, and political processes that drive public-resource governance may, finally, be accounted for.

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INTRODUCTION

On October 6, 2016, mothers from Flint, Michigan, and Hoosick Falls, New York, met to discuss how to move forward in the wake of major water contamination crises in each of their respective communities. “What’s happening in Flint, what’s happening here Why?” Flint resident Darlene McClendon asked. “Why do we have to put up with something that’s a right? Clean water.”¹ Recent headlines have made clear that McClendon’s questions are relevant, not just to the people of Flint, but to a disturbing number of localities across the United States.² Indeed, the widespread attention on public water systems nationwide prompted proposals for a comprehensive update of the federal Safe Drinking Water Act (SDWA) in September 2016.³

Such issues have not gone unnoticed by academic commentators.⁴ Those assessing the problems plaguing the nation’s public water systems frequently reference the patchwork of regulatory mechanisms governing water quality (several core environmental statutes as well as common-law tort actions).⁵ Many have analyzed the difficulties of bringing water contamination tort lawsuits to penalize undesired

¹ Tanja Rekhi, *Flint Mothers Travel from Michigan, Hear Hoosick Falls’ Water Concerns*, SPECTRUM NEWS: CAPITAL REGION (Oct. 7, 2016, 2:53 AM), <http://spectrumlocalnews.com/nc/triad/hoosick-falls-water-contamination/2016/10/6/flint-mothers-travel-from-michigan—hear-hoosick-falls—water-concerns>.

² See, e.g., Laura Unger & Mark Nichols, *4 Million Americans Could Be Drinking Toxic Water and Would Never Know*, USA TODAY (Dec. 14, 2016, 8:01 AM), <https://www.usatoday.com/story/news/2016/12/13/broken-system-means-millions-of-rural-americans-exposed-to-poisoned-or-untested-water/94071732/>.

³ Press Release, Comm. on Energy and Commerce Democrats, House Democrats Introduce Comprehensive Update to Safe Water Drinking Act (Sept. 22, 2016), <https://democrats-energycommerce.house.gov/newsroom/press-releases/house-democrats-introduce-comprehensive-update-to-safe-drinking-water-act> (“The crisis in Flint has highlighted the need for action, but water systems nationwide are in dire need of dramatic improvements . . .”).

⁴ See, e.g., David A. Dana, *Escaping the Abdication Trap when Cooperative Federalism Fails: Legal Reform After Flint* 3–11 (Nw. Univ. Pritzker Sch. of Law Pub. Law & Legal Theory Series, Working Paper No. 17-08, 2017) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2942507; Jonathan R. Eaton, *The Sieve of Groundwater Pollution Protection: A Public Health Law Analysis*, 6 J. HEALTH & BIOMEDICAL L. 109 (2010).

⁵ See, e.g., Eaton, *supra* note 4, at 117–18 (explaining that the EPA regulates groundwater under six different statutes and that there is no centralized authority directly dealing with groundwater).

behavior,⁶ while many others have highlighted shortcomings in the regulations designed to preserve our nation's waters.⁷ Yet while the dual regulation of drinking water by common-law tort action and public regulation is widely recognized, surprisingly few—if any—authors have drawn lessons from the vast literature on the law-and-economics view of tradeoffs between litigation and regulation at the regulatory mix that governs drinking water.⁸ This Note aims to remedy this oversight by applying insight from the law-and-economics framework to a case-study analysis of the groundwater contamination crisis in Hoosick Falls. Through this case study, I aim to uncover why troubling regulatory gaps persist under the federal and state laws that currently govern drinking water quality.

The case study ultimately reveals how certain challenges characteristic of drinking-water regulation—namely scientific uncertainty, resource constraints, and the socio-political dynamics of public regulation—limit public regulatory mechanisms' power to deter drinking-water contamination and to rebalance the equities disrupted when drinking-water pollution occurs. In Hoosick, private tort litigation could address such regulatory shortcomings, but its ability to do so turns on whether courts would be flexible in their conceptions of legally cognizable harm. I argue that such flexible conceptions are justified, given the background of the regulatory constraints just mentioned. Regulatory constraints serve a crucial dual purpose of

⁶ See, e.g., Adam D.K. Abelkop, *Tort Law as an Environmental Policy Instrument*, 92 OR. L. REV. 381 (2013); Eaton, *supra* note 4, at 136 (discussing the difficulties of establishing a chain of causation and medical certainty); Palma J. Strand, *The Inapplicability of Traditional Tort Analysis to Environmental Risks: The Example of Toxic Waste Pollution Victim Compensation*, 35 STAN. L. REV. 575, 576–607 (1983) (analyzing toxic waste pollution as a deviation from traditional tort injuries); James R. Wedeking, *Maximum Contaminant Levels and Environmental Injuries*, 28 J. CONTEMP. HEALTH L. & POL'Y 183 (2012) (observing the difficulty in establishing injury in a water-contamination tort lawsuit and arguing for using maximum contaminant levels as a bright-line threshold).

⁷ See, e.g., Dana, *supra* note 4, at 3–11 (analyzing shortcomings in the Safe Drinking Water Act); Scott D. Laufenberg, *The Struggle of Cities to Implement the Safe Drinking Water Act in the Context of Intergovernmental Relations*, 3 DRAKE J. AGRIC. L. 495 (1998) (discussing difficulties at the city level in implementing the Safe Drinking Water Act).

⁸ For literature exploring the law-and-economics view of tradeoffs between litigation and regulation, see generally Kenneth S. Abraham, *The Relation Between Civil Liability and Environmental Regulation: An Analytical Overview*, 41 WASHBURN L.J. 379 (2002); David E. Adelman & Ian J. Duncan, *The Limits of Liability in Promoting Safe Geologic Sequestration of CO₂*, 22 DUKE ENVTL. L. & POL'Y F. 1, 23 (2011) (discussing how economists now recognize complementary differences between common-law tort liability and ex ante environmental regulation); Charles D. Kolstad et al., *Ex Post Liability for Harm vs. Ex Ante Safety Regulation: Substitutes or Complements?*, 80 AM. ECON. REV. 888, 889, 897–99 (1990) (theorizing the proper balance between ex post liability and ex ante safety regulation in mixed regimes); Steven Shavell, *Liability for Harm Versus Regulation of Safety*, 13 J. LEGAL STUD. 357, 357–74 (1984).

bolstering pollution deterrence and providing a forum in which “regulatory myopia”—the tendency of public regulators to undervalue the cost of uncertain future risks—can be combatted by those who suffer harm as a consequence of such myopia.⁹

This paper proceeds in three parts. In Part I, I discuss the law-and-economics framework for analyzing tradeoffs between litigation and administrative regulation and use it to explain why, although the current regulatory system for drinking water represents a mix of litigative and administrative regulation, that mixed system nevertheless exhibits several key regulatory gaps. In Part II, I explain how these gaps led to Hoosick Falls’s groundwater contamination and regulatory response, and I argue that the reality of regulating in the face of resource constraints and scientific uncertainty makes reliance on tort litigation as a regulatory backstop (rather than statutory revamp) a preferable solution. In Part III, I argue that the need for tort law as a regulatory backstop warrants judicial adoption of noneconomic injury and medical monitoring damages—adoption of these less conventional forms of legally cognizable injuries will allow tort law to be both a stronger deterrent and a platform for precautionary concerns that are consistently overlooked by public regulators.

I

WATER-QUALITY REGULATION: THEORETICAL AND STATUTORY BACKGROUND

In the era of the modern administrative state, regulation is typically supplied by statutory law and regulations that authorize government action to address market failings within an industry. However, prior to the modern era, common-law litigation served as the primary means of regulating an industry.¹⁰ Today, public regulation administered by the state may work in tandem with traditional common-law actions brought by private parties to regulate an industry, though

⁹ I borrow the phrase “regulatory myopia” from Stephan Michel, Alessandro Romano & Ugo Zannini, *Joint Use of Liability and Regulation in Environmental Law 2* (Universität Hamburg Inst. of Law & Econ., Working Paper No. 5, 2017).

¹⁰ See Robert L. Rabin, *Federal Regulation in Historical Perspective*, 38 STAN. L. REV. 1189, 1196 (1986) (noting that “from a national perspective, commercial affairs took place in a world without [federal administrative] regulation” and acknowledging a “fairly substantial amount” of state-level administrative regulation). Note that one of the earliest federal regulatory statutes, the 1838 Steamboat Inspection Act (Act of July 7, 1838, ch. 191, 5 Stat. 304), reflected the “traditional, nonadministrative deterrence strategies” of the common law in its reliance on enhanced civil liability and sanctions for specified misconduct to regulate steamboat boilers. Jerry L. Mashaw, *Administration and “The Democracy”*: *Administrative Law from Jackson to Lincoln, 1829-1861*, 117 YALE L.J. 1568, 1634 (2008).

scholars debate whether such a “mixed system” is ideal in various contexts.¹¹

One common framework for thinking about the pros and cons of public, administrative regulation, and private litigative regulation comes from the law-and-economics school of legal thought and was given its seminal form by Steven Shavell.¹² Shavell categorizes regulatory law in terms of two basic modes of market regulation: an agency-administered method of governing industries through *ex ante* rulemaking and standard setting on the one hand, and deterrence of market externalities through private litigation (as in a tort lawsuit) on the other.¹³ Shavell theorizes that regulation through litigation is best suited to areas where there are concerns about relative information (as to the cost and probability of harms in relation to potential safeguard measures) and/or administrative costs.¹⁴ Bureaucratic regulation is preferable when the likelihoods of a defendant being judgment proof or of a litigant not filing suit when a harm occurs are high.¹⁵

The law-and-economics framework suggests the general wisdom of regulatory design that employs a mix of both administrative and litigative regulation.¹⁶ Since regulatory authorities must rely on imperfect information when setting and administering safety rules, bureaucratic regulation *alone* cannot achieve the socially optimal level of care. Regulation through litigation, by itself, does not provide a sufficient incentive for firms to achieve the socially optimal level of care. There is a non-zero probability that a defendant will be unable to pay for harm caused, escape detection, or otherwise evade litigation.¹⁷ Shavell’s model also suggests that, in mixed regulatory systems of litigation and bureaucratic administration, bureaucratic regulators should adopt safety standards *lower* than they would if regulation

¹¹ See, e.g., Anup Malani & Tomas J. Philipson, *The Regulation of Medical Products*, in THE OXFORD HANDBOOK OF THE ECONOMICS OF THE BIOPHARMACEUTICAL INDUSTRY 100, 132–39 (Patricia M. Danzon & Sean Nicholson eds., 2012) (outlining the regulation of medical products under the Federal Food, Drug, and Cosmetic Act and evaluating the efficiency of layering tort liability on top of this regulatory scheme); Robert L. Rabin, *Tobacco Control Strategies: Past Efficacy and Future Promise*, 41 LOY. L.A. L. REV. 1721, 1724–50 (2008) (contrasting administrative regulatory control strategies with attempts at controlling tobacco through litigation).

¹² See Shavell, *supra* note 8.

¹³ *Id.* at 357.

¹⁴ See *id.* at 365.

¹⁵ See *id.* (summarizing the conclusions drawn from his assessments of the relative desirability of regulation through litigation versus bureaucratic management along four dimensions).

¹⁶ See generally Steven Shavell, *A Model of the Optimal Use of Liability and Safety Regulation*, 15 RAND J. ECON. 271, 271–80 (1984) (modeling the advantage of mixed liability and safety regulation regimes).

¹⁷ *Id.* at 271.

were solely controlled through bureaucratic means.¹⁸ Regulation through litigation will, in theory, pick up the slack of the looser bureaucratic regulatory standard while allowing industry actors to more efficiently tailor their level of care to their level of safety risk.¹⁹

Shavell's model focuses on litigation as a regulatory tool, but importantly, tort law is also a tool of corrective justice. In this capacity, tort law rebalances temporary disruptions of the general distributational scheme that result from injustice(s) committed by one party against another. If *A* chops down *B*'s tree without permission, a corrective justice remedy would be some sort of compensation from *A* to *B* that gives up what *A* unfairly benefited from *B* and compensates *B* for what *B* unfairly lost to *A*. *B*'s tort suit against *A* for conversion of the tree would seek a remedy of this type. Tort law thus has both a compensatory and deterrent function.

The mix of regulation that now governs American public drinking-water quality reflects insights from Shavell's model and raises important corrective justice questions. The Federal Water Pollution Control Act of 1972 (Clean Water Act, 33 U.S.C. §§ 1251–1387)²⁰ and the 1974 Safe Drinking Water Act (42 U.S.C. §§ 300f–300j(9))²¹ were both passed in response to the long-running under-regulation of public water systems.²² Regulation through common-law litigation had been unable to combat these externalities, as doctrinal obstacles, socio-political dynamics, and lack of understanding about the harms and causes of water pollution prevented injured individuals from filing successful tort claims that could deter responsible polluters.²³

Each statute targeted a side of the Shavellian regulation equation. The Clean Water Act (CWA) regulated potential polluters by establishing a prohibition on discharges into “the waters of the United

¹⁸ *Id.* at 271–72.

¹⁹ *Id.* at 276 fig.3 (illustrating the level of care taken at a certain regulatory standard when bureaucratic regulatory standards and regulation through litigation are combined).

²⁰ At the time of its passage, the statute was entitled the Federal Water Pollution Control Act of 1972. CRAIG E. COLTEN & PETER N. SKINNER, *THE ROAD TO LOVE CANAL: MANAGING INDUSTRIAL WASTE BEFORE EPA* 82 (1996).

²¹ See William E. Cox, *Evolution of the Safe Drinking Water Act: A Search for Effective Quality Assurance Strategies and Workable Concepts of Federalism*, 21 WM. & MARY ENVTL. L. & POL'Y REV. 69, 70–71 (1997) (discussing the origins of the Safe Drinking Water Act).

²² See generally *id.* at 72–78.

²³ See generally William L. Andreen, *The Evolution of Water Pollution Control in the United States—State, Local, and Federal Efforts, 1789-1972: Part I*, 22 STAN. ENVTL. L.J. 145, 176 n.170 (2003) [hereinafter Andreen, *Part I*] (discussing local nuisance actions and summarizing the doctrinal obstacles to recovery); *id.* at 186–88 (explaining why public nuisance actions were rarely raised).

States” without a permit.²⁴ While the statute enabled an elaborate system of ex ante regulation, it was also an effort to ensure that polluters would not, as they had under a private tort enforcement regime, escape ex post liability for pollution. Whereas the regulatory power of private tort suits had been hobbled by many courts’ refusal to find that industrial or municipal discharge violated the defendant in question’s duty of care,²⁵ the CWA’s prohibition on unpermitted discharges established a per se violation for which the defendant would be liable.²⁶ The statute’s authorization of a range of enforcement mechanisms aimed to ensure the statutory obligation would have teeth.²⁷ In this way, the CWA shored up ex post enforcement.

On the other side of the regulatory equation, the Safe Drinking Water Act (SDWA) focused on ex ante measures, laying out a system for the creation of national water-quality standards with which municipal providers would be required to comply.²⁸ The Act adopted a two-tiered standards process: The United States Environmental Protection Agency (EPA) issues National Primary Drinking Water Regulations (NPDWRs) for substances with potential adverse human health impacts, first as nonbinding Recommended Maximum Contaminant Levels (RMCLs), and then as legally binding Maximum Contaminant Levels (MCLs).²⁹ State-level water system administrators must monitor their water supplies for MCLs (regulated contaminants) and report and correct levels in excess of the NPDWR, but are not required, unless by state regulations, to monitor substances with only a RMCL (unregulated contaminants).³⁰ This two-tiered process is

²⁴ See 33 U.S.C. § 1251(a) (2012) (listing the goals to restore and maintain the integrity of the country’s waters); 33 U.S.C. § 1342 (2012) (establishing the permit system); 33 U.S.C. § 1362(7) (2012) (“The term ‘navigable waters’ means the waters of the United States, including the territorial seas.”).

²⁵ See Andreen, *Part I, supra* note 23, at 176 n.170 (noting the obstacles to successful private nuisance lawsuits); see also N. William Hines, *Nor Any Drop to Drink: Public Regulation of Water Quality Part I: State Pollution Control Programs*, 52 IOWA L. REV. 186, 196–200 (1966) (documenting cases in which water-pollution tort suits were unsuccessful).

²⁶ See David Drelich, *Restoring the Cornerstone of the Clean Water Act*, 34 COLUM. J. ENVTL. L. 267, 283–84 (2009), for a more detailed discussion of this point.

²⁷ See William L. Andreen, *The Evolution of Water Pollution Control in the United States—State, Local, and Federal Efforts, 1789-1972: Part II*, 22 STAN. ENVTL. L.J. 215, 269–70 (2003) (describing how the CWA’s permit obligation and variety of enforcement mechanisms, including administrative action; judicial proceedings for injunctive relief, civil damages, or even criminal sanctions; and private citizen suits, “reflected the [Senate] [C]ommittee [on Public Work]’s intent to strengthen enforcement”).

²⁸ See 42 U.S.C. § 300g-1 (Supp. IV 1974) (granting authority to the Administrator to promulgate regulations establishing maximum levels for contaminants).

²⁹ *Id.* § 300g-1(b)(1)(B).

³⁰ *Id.* § 300j-4(a) (Supp. IV 1977).

designed to produce information about the risks associated with different compounds in a way that does not burden local administrators with the full cost of enforcement until the EPA is confident in its safety standard's economic feasibility.

In addition to these statutes, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) passed by Congress in 1980, represents one more public regulatory mechanism relevant to water-quality governance. Commonly dubbed "Superfund,"³¹ CERCLA aimed to create a mechanism whereby government authorities could rapidly respond to environmental contamination caused by hazardous waste pollution and recover the associated costs through the financing from Superfund, the five-year, \$1.6 billion Hazardous Substances Response Trust Fund provided for when the Act was first passed.³²

CERCLA established a liability scheme which addressed two limits on tort recovery through environmental litigation. First, by imposing strict liability for response costs on those identified by the EPA as "Potentially Responsible Parties" (PRPs), CERCLA eliminated the obstacle of proving breach of duty.³³ Second, by creating a broad net of potentially liable parties including (in addition to the original polluter) subsequent site owners and operators, and establishing a base fund derived from taxes on oil and chemical companies that could be relied upon should a PRP have insufficient means, the Act sought to ensure recovery regardless of whether a PRP with sufficiently deep pockets could be located. Congress designed a liability scheme that focused primarily on the *compensatory* function of liability, rather than its deterrent power.³⁴ Indeed, in imposing a general

³¹ See 26 U.S.C. § 9507 (2012) (establishing the Hazardous Substance Superfund and subsequently calling it the "Superfund").

³² See MARC K. LANDY ET AL., *THE ENVIRONMENTAL PROTECTION AGENCY: ASKING THE WRONG QUESTIONS FROM NIXON TO CLINTON* 142 (expanded ed. 1994) (describing the policy design of the Superfund bill originally drafted by EPA officials).

³³ 42 U.S.C. §§ 9604, 9606, 9607 (2012) authorize the President to undertake cleanup of contaminated sites and to recover costs from parties who qualify for liability under § 9607(a) or to order those parties to clean up the site. These sections provide that any current owner or operator of a facility, former owner or operator of a facility at the time of disposal, person who arranged for treatment or disposal of hazardous substances, and transporter of hazardous substances may be held liable for response costs and, if held liable, *shall* pay for costs authorized by National Contingency Plan regulations. The EPA has chosen to refer to these parties as PRPs. See U.S. EPA, EPA PRP SEARCH MANUAL 1 (2009), <https://19january2017snapshot.epa.gov/sites/production/files/documents/prp-search-man-cmp-09b.pdf> (providing agency practitioners with enforcement guidance and referring to agency-identified liable parties as PRPs).

³⁴ The legislative history behind CERCLA is limited. John J. Lyons, *Deep Pockets and CERCLA: Should Superfund Liability Be Abolished?*, 6 STAN. ENVTL. L.J. 271, 282 (1987). However, the history that is available suggests that the dominant concerns among the

tax on potential contaminant producers as well as joint and several liability upon all PRPs (even possibly nonpolluting inheritors of previously polluted sites), the Act *diminished* the deterrent effect of strict liability.³⁵ CERCLA offered regulation through liability, but in a form notably distinct from that of traditional tort law.

Taken together, the Safe Drinking Water Act, the Clean Water Act, and CERCLA reflect certain core insights from Shavell's theory of regulatory mixed systems. The SDWA embodies an administrative ex ante mode of agency standard-setting regulation, and it acknowledges one of the great challenges Shavell associated with this type of regulation: the imperfect information available to regulators. Modern production processes and technologies give rise to a host of substances with potentially hazardous effects.³⁶ But lacking the resources to investigate the risk of every potential contaminant to the level of scientific certainty required for regulation, the EPA must stagger its research, channeling enforcement resources toward contaminants for which there is a known level of risk and meanwhile gathering information about a set of unregulated contaminants for which the risk of harm is currently uncertain. The statute deploys this strategy in the

legislators debating CERCLA were ensuring compensation for government responders and affected communities and addressing distributive issues as to who would pay for and who would benefit from the CERCLA process. The history that is available suggests that Congress "barely touched on" certain important issues. While Congressmembers were well-equipped to consider how CERCLA might affect their individual constituents, they were less adept at analyzing "the structure of the program as a whole." LANDY ET AL., *supra* note 32, at 164. Frank P. Grad's overview of the bill's legislative history supports these conclusions and raises no indication that the bill's deterrent effect was discussed during deliberations. See Frank P. Grad, *A Legislative History of the Comprehensive Environmental Response Compensation and Liability ("Superfund") Act of 1980*, 8 COLUM. J. ENVTL. L. 1 (1982). Grad's observation that CERCLA was considered an addendum to the Resource Conservation and Recovery Act (RCRA), a statute governing the management and disposal of hazardous waste, suggests that deterrence may not have been at the forefront of legislators' minds, as RCRA was designed to deter future Love-Canal type events through the use of ex ante regulations. *Id.* at 35–36 (describing the RCRA connection).

³⁵ See Richard A. Epstein, *The Principles of Environmental Protection: The Case of Superfund*, 2 CATO J. 9, 25–26 (1982) (highlighting how CERCLA's "long list" of PRPs limits the "positive incentives" of the Act and reduces the cost of noncompliance to parties who know they will likely be jointly liable with another payer); see also MARC K. LANDY & MARY HAGUE, *THE COALITION FOR WASTE: PRIVATE INTERESTS AND SUPERFUND IN ENVIRONMENTAL POLITICS: PUBLIC COSTS, PRIVATE REWARDS* 69 (Michael S. Greve & Fred L. Smith, Jr. eds., 1992) ("Superfund's liability scheme virtually ensures that the parties' actual contributions will stand in no discernible relation to their relative responsibility.").

³⁶ See CARL F. CRANOR, *LEGALLY POISONED: HOW THE LAW PUTS US AT RISK FROM TOXICANTS* 6 (2011) ("Only about two percent of 62,000 substances in commerce before 1979 have been reviewed at all for their toxicity by the U.S. Environmental Protection Agency (EPA). Of the approximately 50,000 new substances introduced since 1979, about eighty-five percent had no data concerning health effects . . .").

interest of allocating resources efficiently. Amendments to the SDWA since 1972 illustrate variations in Congress's willingness to pay to reduce uncertainty and/or risk over time: Some Congresses embrace a precautionary approach to risk and set ambitious goals for regulation, while others ratchet back research and demonstrate willingness to live with uncertain, unregulated risk.³⁷

The SDWA is complemented by the modified liability schemes of the Clean Water Act and Superfund. To a certain extent, these statutes fill the void not met by regulation through litigation, for they deploy ex post liability mechanisms that mimic private tort law's traditional compensatory and deterrent functions. However, they differ from tort liability in key ways. Clean Water Act enforcement is limited by the resource constraints of local governments charged with administering EPA regulations. Its deterrent power may be compromised by these constraints.³⁸ Further, the CWA's civil and criminal provisions do not serve the compensatory or corrective-justice functions of tort law, for even in citizen suits, the only available remedies are injunctive relief and standard daily fines that violators pay to the government—not damages that can compensate individuals for their specific harm suffered.³⁹ CERCLA's deterrent power is weakened by the expansive joint and several liability for Potentially Responsible Parties which the statute imposes. The central agency role in

³⁷ In the decade following the Act's enactment, adoption of safety standards proceeded at a pace slower than policymakers had envisioned, and lawmakers responded in 1986 by instituting a series of amendments to the SDWA which set an ambitious schedule for promulgation of safety standards. See Cox, *supra* note 21, at 80–81. While these amendments suggested a greater willingness to pay for risk knowledge and prevention, by 1996 the pendulum was swinging back in the opposite direction. The aggressive regulatory schedule imposed by the 1986 amendments had led to a rapid increase in regulated and unregulated contaminants, at a level that outstripped state enforcers' ability to comply. See *id.* at 90 ("EPA estimated that the gap between state program needs and resources was \$162 million in 1993."). Thus, the most recent amendments to the SDWA, from 1996, ratcheted back the rate of regulation, limiting the number of unregulated contaminants which could be moved to MCL status in a given five-year period and setting forth provisions requiring that choices about which unregulated contaminants received MCL consideration be informed by scientific research, public information, and health-risk reduction and cost analysis. 42 U.S.C.A. § 300g-1(b)(3) (West Supp. 1996).

³⁸ See, e.g., RIVERKEEPER, CONTAMINATION OF THE DRINKING WATER RESERVOIR AND WATERSHED OF THE CITY OF NEWBURGH: A CASE STUDY AND A CALL FOR COMPREHENSIVE SOURCE WATER PROTECTION 5–6 (July 2016), <https://www.riverkeeper.org/wp-content/uploads/2016/08/White-Paper-Newburgh-Source-Water-Protection-FINAL-2.pdf> (urging full enforcement of the CWA but noting that "crippling budget and staffing cuts" to the New York Departments of Environmental Conservation and Health "over the course of decades" constrain the law's "effective implementation").

³⁹ See Matthew D. Zinn, *Policing Environmental Regulatory Enforcement: Cooperation, Capture, and Citizen Suits*, 21 STAN. ENVTL. L.J. 81, 169 (2002) (describing this aspect of the statute).

CERCLA actions also limits its corrective-justice/compensatory function because agency logic does not totally align with the harms private parties affected by contamination may suffer. The public liability mechanisms forming part of drinking water's regulatory framework thus diverge from the liability mechanism of traditional tort law, leading to a "mixed" regulatory system, the gaps of which are brought into high relief when viewed through the lens of the water-contamination crisis in Hoosick Falls.

II

REGULATORY BREAKDOWN IN HOOSICK FALLS

A riverside village about thirty miles northeast of Albany, Hoosick Falls became the epicenter for an emerging public-health crisis after resident Michael Hickey's test of village water samples revealed high levels of the chemical perfluorooctanoic acid (PFOA), a likely carcinogen,⁴⁰ in March 2014.⁴¹ A compound used in Teflon and other nonstick and heat-resistant products, PFOA had been a component in products manufactured by the company Saint-Gobain as well as its predecessor, Honeywell, at the town's McCaffrey Street plant since as early as 1986; the facility stood less than 400 yards from the nearest underground well feeding Hoosick Falls's water-treatment plant.⁴² The village eventually tested water samples in October 2014. Several exceeded EPA's short-term exposure Provisional Health Advisory (PHA), a nonbinding guidance issued by the agency's Office of Water, which declared 400 parts per trillion (ppt) of PFOA as the level "above which action should be taken to reduce exposure."⁴³

Follow-up testing confirmed elevated levels of PFOA in the municipal groundwater, privately owned wells, and the groundwater

⁴⁰ U.S. EPA, EMERGING CONTAMINANTS FACT SHEET – PFOS AND PFOA 5 (Mar. 2014), <https://www.scribd.com/doc/301746646/Factsheet-Contaminant-Pfos-Pfoa-3-2014>.

⁴¹ See Matthew Hamilton, *Live Blog: State Senate Water Quality Hearing in Hoosick Falls*, TIMES UNION (Aug. 30, 2016, 6:40 PM), <http://blog.timesunion.com/capitol/archives/266820/live-blog-state-senate-water-quality-hearing-in-hoosick-falls/>. Having lost his father, who lived a "clean life," to an aggressive form of cancer and noticing other instances of cancer in the village, Hickey investigated potential sources of chemical contamination in the area and identified the Saint-Gobain plastic plant. Roopal Luhana, *Hoosick Falls Residents Frustrated with State Response to PFOA Contamination*, LEGAL EXAMINER (Nov. 15, 2016, 10:00 AM), <http://newyork.legalexaminer.com/toxic-substances/hoosick-falls-residents-frustrated-with-state-response-to-pfoa-contamination/>.

⁴² Luhana, *supra* note 41.

⁴³ See Hamilton, *supra* note 41 (indicating that the samples taken by the Village in October 2014 showed levels of PFOA ranging from 180 to 540 ppt); EMERGING CONTAMINANTS FACT SHEET – PFOS AND PFOA, *supra* note 40, at 5 (reporting on the EPA's provisional health advisory for short-term exposure to PFOA).

directly below the McCaffrey Street site.⁴⁴ By fall of 2015, Saint-Gobain had offered to fund construction of a new water-filtration system for the town and had begun supplying bottled water to the community.⁴⁵ Government regulators, however, provided mixed messages. In December 2014, Hoosick Falls officials posted a memo on the village website affirming the safety of the water supply and the municipal water supplier's compliance with federal and state regulations.⁴⁶ EPA regional administrator Judith Enck (an official of the federal EPA) rebuked the Village with a November 25 letter to its Mayor, David Borge, noting that PFOA levels above the EPA's advisory level, while not enforceable, suggested the need for discontinuing use of Village water for drinking or cooking; she recommended changes to the Village website to accurately reflect these advisories.⁴⁷ The state's health department did not warn residents against drinking the water until Enck's warning was made public in December 2015.⁴⁸

In January 2016, Village officials met with the New York Department of Environmental Conservation (NYDEC) to ask about requesting the EPA to list Saint-Gobain's property as a federal Superfund site. Meanwhile, New York Governor Andrew Cuomo declared a state of emergency in Hoosick Falls, naming the Saint-Gobain plant a state Superfund site and PFOA a hazardous substance.⁴⁹ Using emergency regulation power to declare the plant a state Superfund site, NYDEC exercised local authority to enforce higher hazard standards than those adopted by the EPA and gained the legal authority to finally mobilize resources for water treatment and testing and bottled-water delivery in the Village.⁵⁰ On March 30,

⁴⁴ See Hamilton, *supra* note 41, for the timeline of these tests and results.

⁴⁵ *Id.*

⁴⁶ *Id.* The memo is available to view online. See Letter from David B. Borge, Mayor, Vill. of Hoosick Falls, to Hoosick Falls residents (Dec. 2014), <http://www.villageofhoosickfalls.com/Media/PDF/WaterLetter-122014.pdf>.

⁴⁷ Letter from Judith A. Enck, Reg'l Adm'r, U.S. EPA, to David B. Borge, Mayor, Vill. of Hoosick Falls (Nov. 25, 2015), <http://www.villageofhoosickfalls.com/Media/PDF/EPA-PFOA-letter-112515.pdf>.

⁴⁸ Jesse McKinley, *After Months of Anger in Hoosick Falls, Hearings on Tainted Water Begin*, N.Y. TIMES (Aug. 30, 2016), <http://www.nytimes.com/2016/08/31/nyregion/hoosick-falls-tainted-water-hearings.html>.

⁴⁹ See Hamilton, *supra* note 41 (illustrating the January 2016 federal and state Superfund action).

⁵⁰ See Governor Cuomo Announces Immediate State Action Plan to Address Contamination in Hoosick Falls, N.Y. STATE (Jan. 27, 2016), <https://www.governor.ny.gov/news/governor-cuomo-announces-immediate-state-action-plan-address-contamination-hoosick-falls>, for the press release reporting the state action. CERCLA does not preempt state "mini-Superfund" designations and actions. See Robert B. McKinstry, Jr., *The Role of State "Little Superfunds" in Allocation and Indemnity Actions Under the Comprehensive Environmental Response, Compensation, and Liability Act*, 5 VILL. ENVTL. L.J. 83, 89–92

2016, following implementation of comprehensive water filtration, the state Department of Health declared the Village water system safe, with no detectable levels of PFOA.⁵¹ In May, however, the EPA released a new *lifetime* standard for PFOA exposure of 70 ppt in drinking water, an amount far below the level found in several pre-filtration Hoosick Falls water samples.⁵² Moreover, hundreds of the over 2000 residents who received blood tests for PFOA were reported to be above the EPA's new long-term level, including some children.⁵³ Residents who have consulted with state Department of Financial Services officials have been further alarmed to discover radical depreciation of their home values in the wake of the crisis.⁵⁴

Ongoing negotiations between the Village and the companies on a settlement agreement reimbursing the Village for costs associated with the contamination have been hotly contested.⁵⁵ In 2017, the EPA declared Hoosick Falls a Superfund site under CERCLA.⁵⁶ In the meantime, residents are pursuing a class-action lawsuit against Saint-Gobain and Honeywell, seeking recovery in the form of testing and permanent filtration of private wells, a biomonitoring protocol for affected residents, and damages for lost property values and other remedial clean-up action, on theories of negligence, private nuisance, trespass, and strict liability.⁵⁷

Public officials are tackling the problems facing Hoosick Falls in various ways. State and federal legislators have called oversight committees and hearings to scrutinize the state and federal government

(1994) (explaining the role of states in CERCLA and laying out the legal authority against federal preemption of state mini-Superfunds). N.Y. ENVTL. CONSERV. LAW § 70-0116 (McKinney 1986) provides for emergency authorizations by NYDEC; section 27-1313 authorizes NYDEC to access state funding for response actions at state-listed sites.

⁵¹ See Hamilton, *supra* note 41, for a timeline illustrating the state Department of Health's declarations of water system safety.

⁵² McKinley, *supra* note 48.

⁵³ *Id.*

⁵⁴ See Hamilton, *supra* note 41 (describing homeowners' concerns about their mortgages in the wake of the area's tainted water).

⁵⁵ The initial proposed settlement was rejected after public uproar. See Amanda Fries, *Village Balks at PFOA Hoosick Falls Payout: Facing Show of Opposition, Hoosick Falls Board Tables Vote on \$1.04M Settlement*, TIMES UNION (Feb. 27, 2017, 10:55 PM), <http://www.timesunion.com/local/article/Village-balks-at-PFOA-Hoosick-Falls-payout-10964257.php> (describing the tabling of a Village board-meeting vote on a revised settlement agreement, in the face of public criticism and protest).

⁵⁶ See EPA Adds Saint-Gobain Performance Plastics Site in Hoosick Falls, N.Y. to the Federal Superfund List, U.S. EPA (July 31, 2017), <https://www.epa.gov/newsreleases/epa-adds-saint-gobain-performance-plastics-site-hoosick-falls-ny-federal-superfund-list>.

⁵⁷ Master Consol. Class Action Complaint ¶¶ 154–89, Baker v. Saint-Gobain Performance Plastics Corp., No. 1:16-CV-917 (LEK/DJS) (N.D.N.Y. Aug. 26, 2016), 2016 WL 8604077.

responses to Hoosick's contamination.⁵⁸ The 2017–2018 New York State budget saw major investments in water-quality infrastructure and passage of an act implementing greater state oversight of unregulated contaminants in response to the regulatory problems brought to light in Hoosick Falls and elsewhere.⁵⁹ However, these responses, while addressing core issues in the regulatory system, cannot completely overcome the regulatory obstacles of resource constraints and scientific uncertainty inherent to the water-quality context. Hoosick Falls illustrates how private tort litigation may respond to the unique problems of water-quality regulation more efficiently and nimbly than the proposed regulatory reforms.

A. *The Limits of Ex Ante Regulation*

The Hoosick Falls case study vividly illustrates the limits of ex ante regulation in a context of scientific uncertainty. Limited scientific understanding of PFOA's health risks to humans, in addition to statutory limits on its regulation, led to a delay in public water testing and recognition of a public-health emergency. Such regulatory myopia is closely tied to norms about the costs of risk prevention deeply ingrained in our current ex ante regulatory regime, and it thus suggests that private and ex post liability mechanisms are critical to effective drinking-water regulation by making the present harms of uncertain risk more concretely felt and measured.

1. *Regulating in the Face of Scientific Uncertainty*

Hoosick Falls's failure to detect elevated levels of PFOA in the Village drinking water supply flowed from the fact that the Village, a public water supplier serving a population of 10,000 or fewer, fell within a group of municipal water providers that were not required to monitor levels of the unregulated contaminant PFOA when, begin-

⁵⁸ See, e.g., Tanja Rekhi, *19th Congressional District Candidates Square Off in TWC News Debate*, SPECTRUM NEWS (Oct. 25, 2016, 3:03 AM), <http://www.twcnews.com/nys/binghamton/news/2016/10/24/19th-congressional-district-debate-ny-19.html> (describing candidates' support for an investigation into bureaucratic failings); Scott Waldman, *Gillibrand Meets with Hoosick Falls Residents; State Senate to Hold Hearings in August*, POLITICO (July 8, 2016, 6:02 PM), <http://www.politico.com/states/new-york/albany/story/2016/07/gillibrand-travels-to-hoosick-falls-to-call-for-hearings-as-state-senate-finally-caves-to-pressure-103657> (describing U.S. Senator Kirsten Gillibrand's support for federal hearings); *Rep. Gibson Calls for Congressional Investigation of Response to Rensselaer County Water Contamination*, REALESTATERAMA (Nov. 3, 2016), <http://newyork.realestaterama.com/2016/11/03/rep-gibson-calls-for-congressional-investigation-of-response-to-rensselaer-county-water-contamination-ID05242.html>.

⁵⁹ See John T. McDonald, *2017-18 Budget Update – Clean Water Infrastructure*, TIMES UNION (Apr. 17, 2017, 4:30 PM), <https://blog.timesunion.com/johnmcdonald/2017-18-budget-update-clean-water-infrastructure/4582/>.

ning in January 2013, the EPA instituted mandatory testing for the chemical.⁶⁰ Yet, the story of PFOA contamination in Hoosick Falls likely dates to long before 2013. Manufacturing involving PFOA may have occurred on the site as early as the 1980s.⁶¹ Scientific uncertainty prompted the time lag between PFOA's introduction on the market and its inchoate regulation by EPA—and the consequent emergence of PFOA contamination as a public health crisis.⁶²

PFOA is one of the so-called “endocrine disruptors” whose potential health concerns began to receive widespread attention in the 1990s.⁶³ Congress took action with a 1996 amendment to the Food, Drug, and Cosmetic Act that directed the EPA to study low-level effects of these compounds.⁶⁴ Yet, it was not until 2006 that the EPA took steps clearly signaling concern with PFOA use, first launching a “stewardship program” in cooperation with eight major producers of PFOA to phase out its production and emissions entirely by 2015 and then issuing a Science Advisory Board statement that PFOA was “likely to be carcinogenic to humans.”⁶⁵ In 2008, an EPA enforcement action against DuPont, the primary producer of PFOA, revealed that the company had failed to disclose risk information about the chemical, required by Toxic Substance Control Act section 8(e).⁶⁶ The EPA announced that it would investigate the human health effects of expo-

⁶⁰ See *Monitoring Unregulated Drinking Water Contaminants: Third Unregulated Contaminant Monitoring Rule*, U.S. EPA, <https://www.epa.gov/dwucmr/third-unregulated-contaminant-monitoring-rule> (last visited July 31, 2018), for a list of unregulated contaminants to be monitored by a representative sample of Public Water Suppliers serving 10,000 or fewer individuals. The representative sample did not include Hoosick Falls. See *Monitoring Unregulated Drinking Water Contaminants: Occurrence Data for the Unregulated Contaminant Monitoring Rule*, U.S. EPA, <https://www.epa.gov/dwucmr/occurrence-data-unregulated-contaminant-monitoring-rule#3> (last visited Sept. 16, 2018) (download the UCMR 3 Occurrence Data spreadsheet). A review of the compiled data indicates that Hoosick Falls was not part of the representative sample.

⁶¹ See Hamilton, *supra* note 41 (timeline indicating plastics production on the McCaffrey Street site since as early as 1986 and widespread use of PFOA in plastics since the 1940s).

⁶² See CRANOR, *supra* note 36.

⁶³ Bruce J. Berger & Michael L. Junk, *Endocrine Disruptors: The Potential Cloud of Manufacturer Toxic Tort Liability*, 74 DEF. COUNS. J. 106, 106 (2007).

⁶⁴ *Id.* at 106 n.2.

⁶⁵ See *Assessing and Managing Chemicals Under TSCA: Fact Sheet: 2010/2015 PFOA Stewardship Program*, U.S. EPA, <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/fact-sheet-20102015-pfoa-stewardship-program> (last visited July 31, 2018), for the agency's account of the stewardship program. See EMERGING CONTAMINANTS FACT SHEET – PFOS AND PFOA, *supra* note 40, at 5, for a reference to the Science Advisory Board report.

⁶⁶ OFFICE OF CIVIL ENF'T, U.S. EPA, ENFORCEMENT ALERT: FAILURE TO REPORT CHEMICAL RISKS CAN RESULT IN MAJOR FINES: SECTION 8(E) OF THE TOXIC SUBSTANCES CONTROL ACT 1 (2008), <http://www.epa.gov/compliance/resources/newsletters/civil/enfalert/8e-tsca-0807.pdf>.

sure to PFOA as a result of DuPont's disclosure, but the agency has yet to set binding regulations on the chemical in any of the areas over which it exercises jurisdiction.⁶⁷

The EPA's hesitance to set regulatory standards for PFOA flows from norms encoded in the statutes that authorize the EPA to regulate compounds such as PFOA. In contrast to the pharmaceutical, pesticide, and food-additive industries—which must attain some form of premarket clearance from government regulators—the chemical industry is subject only to “postmarket” regulation.⁶⁸ The negative health effects of new chemicals frequently emerge only after years of exposure and with such subtlety that it is difficult to isolate them from normal variations in human health. Thus, establishing the conclusive proof necessary to justify postmarket regulation often poses a significant barrier to agency action.⁶⁹

In the case of PFOA, while the EPA has compiled a number of studies showing adverse health effects in animals and suggesting the compound's carcinogenicity for humans, evidence from human studies remains insufficient to establish toxicity to the degree of certainty necessary for more aggressive regulation.⁷⁰ This helps explain why PFOA was not listed as an unregulated contaminant until the SDWA's third listing in 2012, despite evidence as early as January 2009 sufficient to justify EPA's issuance of a provisional short-run health advisory for PFOA exposure in drinking water. In keeping with the SDWA's staggered system of information gathering and regulation, the agency relied on a provisional health advisory to provide stopgap caution until it could marshal the resources to establish PFOA's risk level.⁷¹ Because the statutes regulating PFOA place a burden of knowledge production on public regulators *before* regulatory costs are imposed on industry and water systems, harmful compounds with ultimate,

⁶⁷ See EMERGING CONTAMINANTS FACT SHEET – PFOS AND PFOA, *supra* note 40, at 5–6 (listing federal guidelines regarding PFOA, none of which are binding regulations).

⁶⁸ CRANOR, *supra* note 36.

⁶⁹ See *id.* at 47–80 (describing the challenges of proving health effects in humans caused by industrial molecules and arguing that given these challenges, human studies should not be a necessary condition to their regulation).

⁷⁰ See EMERGING CONTAMINANTS FACT SHEET – PFOS AND PFOA, *supra* note 40, at 5 (describing studies and noting need for further analysis).

⁷¹ See 42 U.S.C. § 300g-1(b)(1)(F) (2012) (“The Administrator may publish health advisories (which are not regulations) or take other appropriate actions for contaminants not subject to any national primary drinking water regulation.”). See Cox, *supra* note 21, at 90-91 for a description of how the 1996 SDWA amendments, motivated by a desire to promote more efficient use of resources, slowed the pace of the SDWA's “regulatory treadmill” and “established a more rational decisionmaking process” through provisions found in § 300g-1(b).

though initially uncertain, risks tend to escape public regulation until it is too late to prevent their negative health effects.

2. *Complications of Federalist Governance*

Despite federal laws which set a high standard for scientific certainty before binding regulations may be set,⁷² the federalist structure of environmental regulation allows localities to enact and enforce stricter environmental guidelines and standards within the bounds of discretion granted them by local law. This presents a possible solution to the under-regulation of compounds for which EPA cannot meet scientific production burdens: Not every locality need regulate these compounds, but communities where such compounds are particularly prevalent might voluntarily take on the cost of regulating their uncertain risk. For example, localities such as Hoosick Falls, where local industry makes PFOA a more likely pollutant, might have a higher willingness to pay for regulation of the uncertainly risky compound.⁷³

The failure of Hoosick's water managers not to test for PFOA once it was identified as an unregulated contaminant, even if they were not required to do so, is consistent with long-running accounts of the disconnect between federal and local regulators. Complaints that earlier, more extensive monitoring requirements constituted "unfunded mandates" forced upon state regulators by the federal government motivated the SDWA's most recent round of amendments.⁷⁴ The amendments, which reduced the unregulated contaminant monitoring requirements for public water systems serving 10,000 people or less (like Hoosick's), were spurred by reports from the Government Accountability Office (GAO) that observed "[f]unding shortages at the federal, state, and water system level" contributing to widespread noncompliance by state enforcers.⁷⁵ Such funding constraints may have prompted Hoosick's water managers to, by default, regulate at the minimum level required by the EPA. And their approach would

⁷² See *supra* notes 38–39 and accompanying text.

⁷³ Indeed, although New York had not instituted any guidelines regarding PFOA, neighboring New Jersey—as well as two other states—issued local guidelines about acceptable levels of PFOA in drinking water and groundwater between 2006 and 2013. See EMERGING CONTAMINANTS FACT SHEET – PFOS AND PFOA, *supra* note 40, at 5 (discussing guidelines instituted in New Jersey, Minnesota, and North Carolina).

⁷⁴ See Rena I. Steinzor, *Unfunded Environmental Mandates and the "New (New) Federalism": Devolution, Revolution, or Reform?*, 81 MINN. L. REV. 97, 184–85, 185 n.281 (1996) (noting repeated citations of SDWA requirements by members of Congress as examples of "onerous and unnecessary federal mandates during the floor debate over the Unfunded Mandates Reform Act of 1995").

⁷⁵ *Id.* at 194–95 (quoting U.S. GOV'T ACCOUNTABILITY OFF., GAO/RCED-92-184, DRINKING WATER: WIDENING GAP BETWEEN NEEDS AND AVAILABLE RESOURCES THREATENS VITAL EPA PROGRAM 2 (1992)).

not be exceptional: Only three states issued local guidelines about acceptable levels of PFOA in drinking water and groundwater between 2006 and 2013, and they did so *after* experiencing their own PFOA contamination scares.⁷⁶ In these jurisdictions, as in New York, the uncertain risk of PFOA only merited extra cautionary measures once a concrete contamination event made PFOA's health risks an immediate concern.

The back-and-forth between federal and state regulators after Hoosick Falls residents prompted PFOA testing evidenced a disjunction between the significance local regulators attached to the EPA's advisory guidelines and the significance those guidelines held for federal regulators. In a memo originally published to the Village's website in December 2014, Mayor David Borge assured residents that "[n]either the County [Department of Health (DOH)], the State DOH, nor the Federal EPA has set minimum standards for exposure to [PFOA]. The EPA is in the data collection phase only."⁷⁷ Judith Enck's November 25 missive took issue with this language, requesting that the sentence "[t]he EPA is in the data collection phase only" be deleted, and explaining at length the public health measures the EPA recommended be taken in the case of levels above its advisory recommendation.⁷⁸ Enck acknowledged the advisory level was not enforceable, but asserted that "[p]rovisional health advisories represent reasonable, health-based hazard concentrations above which action should be taken to reduce exposure to unregulated contaminants in drinking water."⁷⁹ When local regulators saw themselves caught off-guard by a contaminant for which they were not legally bound to test, they emphasized the nonbinding, nondefinitive quality of current federal regulations over PFOA. By contrast, the Federal EPA, unable to produce evidence of health effects at the level of scientific certainty

⁷⁶ Guidelines were issued in North Carolina in 2006, Minnesota in 2011, and North Carolina in 2013. EMERGING CONTAMINANTS FACT SHEET – PFOS AND PFOA, *supra* note 40, at 5. In 2004, officials in Minnesota discovered contaminated drinking water supplies surrounding the dumpsite of a major manufacturer. *Perfluorochemicals (PFCs)*, MINN. POLLUTION CONTROL AGENCY, <https://www.pca.state.mn.us/waste/perfluorochemicals-pfcs> (last visited Aug. 15, 2018). The other states' agencies are less open about the reasons for establishing PFOA guidances, but at least one advocacy group attributes them to their "extensive PFOA contamination." Press Release, Pub. Emps. for Envtl. Responsibility, North Carolina Poised to Take a Dive on PFOA Contamination: Proposed Standards Substantially Weaker than Health Guidance in Other States (June 1, 2010), <https://www.peer.org/news/news-releases/north-carolina-poised-to-take-a-dive-on-pfoa-contamination.html> (referring to contamination in Minnesota, West Virginia, New Jersey, and North Carolina).

⁷⁷ Letter from David B. Borge to Hoosick Falls residents, *supra* note 46.

⁷⁸ Letter from Judith A. Enck to David B. Borge, *supra* note 47.

⁷⁹ *Id.* at 1.

required for binding regulation, imbued the provisional advisory with the kind of weight more typically associated with a hard enforcement standard.⁸⁰ These divergent state and federal understandings of the provisional advisory illustrate a tension within the *ex ante* regulatory scheme as to how uncertain risks should be approached.

Public outrage over the halting regulatory response to PFOA contamination has focused attention on the bureaucratic miscommunications and misunderstandings of state and federal regulators. While troubling, these regulatory shortcomings are nevertheless a red herring for a bigger problem playing out in Hoosick Falls: Even if Village water managers had started testing for PFOA as early as 2006, when the EPA issued its provisional health advisory, and had been able to mitigate effects of contamination through earlier detection and response, it is likely that significant public health concerns would still be present. PFOA was part of production processes at the McCaffrey Street facility as early as 1986, and possibly earlier, given that the site has housed manufacturers since 1956 and PFOA has been used in industrial and household products since the 1940s.⁸¹ The chemical is notable for its lengthy half-life and bioaccumulating properties.⁸² As a result, even if PFOA contamination had been detected in 2006 rather than in 2014, it seems likely that contamination levels, even at that early point, would have exceeded the EPA's provisional advisory and would have given rise to significant accumulations of PFOA in the bodies of Hoosick's groundwater users. This is not to say that there is not space for improvement in the federal-state regulatory division of labor.⁸³ The point, rather, is to highlight how limited *ex ante* regula-

⁸⁰ Compare Enck's language in the letter cited *supra* note 47, with that the EPA uses to describe regulated contaminants on its website: NPDWRs "[p]rotect drinking water quality by limiting the levels of specific contaminants that *can* adversely affect public health and are *known or anticipated* to occur in water from public water systems." *How EPA Regulates Drinking Water Contaminants*, U.S. EPA (emphases added), <https://www.epa.gov/dwregdev/how-epa-regulates-drinking-water-contaminants> (last visited Sept. 16, 2018).

⁸¹ See Hamilton, *supra* note 41 (providing a timeline indicating manufacturing at McCaffrey Street since 1956 and PFOA use since the 1940s).

⁸² PFOA's half-life in water has been calculated to last more than ninety-two years, and studies in humans have indicated a half-life of PFOA in the human body ranging from two to nine years. EMERGING CONTAMINANTS FACT SHEET – PFOS AND PFOA, *supra* note 40, at 2, 4. Perfluorinated compounds such as PFOA are formed with particularly tightly bound fluorine atoms, leading to their long half-life in humans and near non-biodegradability. CRANOR, *supra* note 36, at 37–38.

⁸³ For a proposal aiming to force accountability for water-quality governance at both state and federal levels, see Dana, *supra* note 4, at 35 (concluding that the author's proposed institutional and testing disclosure reforms would give greater political salience to water issues at the state and federal level). In a similar vein, Daniel C. Esty argues that fine-tuning federalism is less important to effective environmental governance than is

tion of less certain risks can lead to regulatory slack with respect to potential toxins whose effects are expected to emerge over long periods of time.

B. Ex Post Liability as a Means to Fill Regulatory Slack

Prevailing norms limit the resources that may be devoted to ex ante regulation of uncertain risks; thus, national drinking water safety standards likely fall below the level that would be optimal if bureaucratic regulation was the only mode of regulation in play. Shavell's model indicates that regulation through liability can take up the resultant regulatory slack.⁸⁴ The case study of Hoosick Falls, however, illustrates how *public* liability mechanisms fall short of fulfilling all the functions served by private litigation.

1. Limits of Clean Water Act Liability

A liability regime could make the shortcomings of ex ante regulation under the SDWA a moot point by deterring pollution that causes drinking-water contamination in the first place. The CWA provides such a mechanism, levying fines on those who discharge pollutants into the nation's waterways without a permit.⁸⁵ It does not appear that companies manufacturing at McCaffrey Street ever received a permit for discharges made at the site,⁸⁶ but the concentrations of PFOA

fostering an effective mix of competitive pressures and regulatory collaboration between governing agents. See Daniel C. Esty, *Toward Optimal Environmental Governance*, 74 N.Y.U. L. REV. 1495 (1999).

⁸⁴ See Catherine Sharkey, *Tort as Backstop to Regulation in the Face of Uncertainty*, JOTWELL: TORTS (Nov. 26, 2013), <http://torts.jotwell.com/tort-as-backstop-to-regulation-in-the-face-of-uncertainty/> (reviewing Thomas Merrill & David Schizer, *The Shale Oil and Gas Revolution, Hydraulic Fracturing, and Water Contamination: A Regulatory Strategy* (Columbia Law & Econ., Working Paper No. 440, 2013)), for discussion of a proposed regulatory framework for fracking that “stand[s] on the shoulders of” Shavell in suggesting that tort law may be a more dynamic and responsive regulatory tool in contexts of scientific uncertainty.

⁸⁵ The federal law has been interpreted not to include discharge into groundwater sources, but New York State's version of the CWA holds polluters liable for discharge into groundwater. Richard Thomas, *The European Directive on the Protection of Groundwater: A Model for the United States*, 26 PACE ENVTL. L. REV. 259, 266 n.52 (2009).

⁸⁶ A May 17, 2017 search by the author of current NYDEC issued permits revealed no record of discharge permits issued to occupants of the McCaffrey Street site. The permit catalog may be accessed at <https://www.dropbox.com/sh/hz3spt98h4d88ue/AADmNLcYxcpZQFeWUNAxGmi9a?dl=0>. Select the “IndexSPDES” spreadsheet. Navigate to the section listing permits issued within the municipality of Hoosick. None of the listed permit recipients are either current or former occupants of the McCaffrey Street site or an alias for the current or former occupants. Plaintiffs' complaint alleges that site occupants have discharged their industrial wastewater through floor drains into the soil and, thus, to the groundwater aquifer below. Master Consol. Class Action Complaint, *supra* note 57, at ¶¶ 60–84. Under the broad interpretations granted “point source” and

found in Hoosick Falls's water supply make it plausible that illegal discharges occurred without enforcement action by state regulators.⁸⁷ As Shavell noted, the deterrent effect of a liability regime is only as good as the probability of enforcement. In the case of the CWA, New York advocacy organizations have argued that this probability is low because of NYDEC's chronic understaffing and underfunding, as well as their "highly flawed permitting practices."⁸⁸ Indeed, throughout the state's emergency response to Hoosick's contamination, no mention has been made of potential CWA liability for either Honeywell or Saint-Gobain, although the two companies have been identified as responsible parties in CERCLA and state Superfund actions. Under-enforcement of the CWA may be diluting its deterrent effect.

2. *Shortcomings of CERCLA Liability*

Why the threat of CERCLA liability was insufficient to deter PFOA discharge into Hoosick Falls's groundwater is less clear. CERCLA cleanup costs are widely recognized as burdensome; indeed, the program's power to deter property transactions involving transfers of potential CERCLA liability has been documented.⁸⁹ It may be that PRPs with "deep pockets" have an incentive not to voluntarily clean up or even alert authorities of contamination when a CERCLA action seems unlikely, as voluntary action could unleash potentially immense CERCLA liability costs which would otherwise go untriggered.⁹⁰ Thus, a deep-pocket PFOA polluter in the 1990s could plausibly regard the risk of later CERCLA action as low, based on the uncertainty of the chemical's health effects as well as the likely lag time between the compound's introduction into the environment and the emergence of measurable health effects. Following this logic,

"discharge" in New York's version of the CWA, such conduct would presumably require a permit. For an overview of how statutory definitions have been interpreted, see N.Y. ENVTL. CONSERV. LAW § 17-0105 Practice Commentaries (McKINNEY).

⁸⁷ This is the allegation made by class-action plaintiffs. See Master Consol. Class Action Complaint, *supra* note 57, at ¶¶ 60–84 (describing alleged discharges made by defendants).

⁸⁸ *Stop Polluters*, RIVERKEEPER, <https://www.riverkeeper.org/campaigns/stop-polluters/> (last visited Aug. 16, 2018) (noting in the "Pollution Enforcement" subsection that ninety percent of New York State's discharging facilities are not receiving permitting scrutiny required by the CWA).

⁸⁹ See, e.g., Daniel E. Feder, *The Undefined Parameters of Lessee Liability Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A Trap for the Unwary Lender*, 19 ENVTL. L. 257 (1988) (warning of potential liabilities that lenders may face if lending to lessees of real property covered by CERCLA).

⁹⁰ See Michael J. Gergen, *The Failed Promise of the "Polluter Pays" Principle: An Economic Analysis of Landowner Liability for Hazardous Waste*, 69 N.Y.U. L. REV. 624, 674–76 (1994) (explaining why "deep pockets" found jointly and severally liable with "empty pockets" under CERCLA will be motivated not to report contamination).

Saint-Gobain's internal decision to quietly phase out PFOA use in 2003⁹¹ may have been the most cost-effective move as signs of PFOA's potential health risks became more convincing and the threat of later CERCLA liability became a greater possibility. Whatever the case, at the time PFOA was in wide manufacturing use, the firms that used it do not appear to have anticipated future costs of their pollution at sufficient magnitude or probability to justify whatever burden was necessary to avoid future liability—CERCLA's deterrent effect was not enough to prevent PFOA contamination.

Although inadequate as a deterrent, CERCLA, along with the New York State Superfund law, promises to compensate municipalities and affected residents—but only for removal and remedial costs authorized by the agency. The extent of the compensation PRPs are obligated to provide can be shaped through negotiations between regulators and PRPs. In Hoosick Falls, state Superfund proceedings have led to two consent orders between Saint-Gobain and Honeywell and the NYDEC, obligating the companies to: reimburse the state for response costs, fund a permanent water filtration system for the Village, investigate alternative water sources as part of the state Superfund program's required Remedial Investigation and Feasibility Study, and negotiate with the Village regarding reimbursement for the Village's past costs.⁹² However, the orders do not obligate the companies to fund medical biomonitoring programs for residents with elevated levels of PFOA in their bloodstreams, nor do they address the losses in property values measured as a result of the contamination scare⁹³—both of which are components of the damages sought by

⁹¹ See Brendan J. Lyons, *State Was Notified of PFOA Pollution in Rensselaer County in 2005*, TIMES UNION (Feb. 29, 2016, 12:55 PM), <http://www.timesunion.com/tuplus-local/article/State-was-notified-of-PFOA-pollution-in-6855901.php> (recounting a Saint-Gobain spokesperson's report that the company began phasing out its use of PFOA in 2003).

⁹² Press Release, N.Y. State Dep't of Env'tl. Conservation, New York State Department of Environmental Conservation Secures Agreement That Holds Saint Gobain & Honeywell Responsible for PFOA Contamination in Hoosick Falls Area (June 3, 2016), <http://www.dec.ny.gov/press/106463.html>; see also Order on Consent and Administrative Settlement at 8–9, Saint-Gobain Performance Plastics Corp., No. CO 4-20160212-18 (N.Y. State Dep't of Env'tl. Conservation State Superfund Program June 3, 2016), http://www.dec.ny.gov/docs/regions_pdf/stgobainco632016.pdf (discussing obligations to pay past costs, including negotiation with the Village); Order on Consent and Administrative Settlement, Honeywell Int'l Inc., No. CO 4-20160415-79 (N.Y. State Dep't of Env'tl. Conservation State Superfund Program June 3, 2016), http://www.dec.ny.gov/docs/regions_pdf/oakmatorder.pdf.

⁹³ See Order on Consent and Administrative Settlement at 4–9, Saint-Gobain Performance Plastics Corp., No. CO 4-20160212-18 (N.Y. State Dep't of Env'tl. Conservation State Superfund Program June 3, 2016), http://www.dec.ny.gov/docs/regions_pdf/stgobainco632016.pdf (statement of obligations not including medical monitoring or property damage compensation); Order on Consent and Administrative

plaintiff residents of Hoosick Falls in their class action against Saint-Gobain and Honeywell.⁹⁴

Negotiations between the companies and the Village illustrate not only the power that PRPs dealing with Superfund-inexperienced players can exercise in negotiating down their costs, but also CERCLA's limited power to deter polluters, frustrating affected parties' corrective justice demands. The first settlement agreement reached between the Village and companies received public criticism when it promised payment of \$850,000 for Village expenses incurred because of contamination and waived the Village's right to file any additional claims against the companies in relation to PFOA contamination.⁹⁵ That settlement agreement was tabled by the Village Board after meeting fierce opposition from residents.⁹⁶ A second package providing \$1.04 million in compensation and also waiving the Village's right to bring future claims against the companies received criticism from high-profile individuals such as former EPA Administrator Enck and Senator Kirsten Gillibrand; it was also rejected.⁹⁷ The Village, unable to negotiate a satisfactory settlement with the companies, voted earlier this year to file suit against them.⁹⁸ Tellingly, after finding itself powerless to satisfy public demands for corrective justice and compensatory remedies through CERCLA negotiations, the Village is fighting to retain its power to utilize litigation remedies.

Settlement at 3–4, Honeywell Int'l Inc., No. CO 4-20160415-79 (N.Y. State Dep't of Envtl. Conservation State Superfund Program June 3, 2016), http://www.dec.ny.gov/docs/regions_pdf/oakmatorder.pdf (same).

⁹⁴ Master Consol. Class Action Complaint, *supra* note 57, at ¶¶ 135, 186–89 (seeking biomedical monitoring and property damage-based damages).

⁹⁵ See Brendan J. Lyons, *No Future Claims in Hoosick Falls Settlement Proposal: \$850,000 Settlement Includes \$410,000 for Attorneys and PR Advice*, TIMESUNION (Jan. 10, 2017, 11:31 PM), <http://www.timesunion.com/local/article/Hoosick-Falls-releases-settlement-with-companies-10847350.php> (quoting critiques from public advocates and attorneys regarding the waiver of any future legal claims).

⁹⁶ See Terry Stackhouse, *Hoosick Falls Considers Revised Agreement with Saint Gobain, Honeywell for PFOA Contamination*, SPECTRUM NEWS (Feb. 22, 2017, 10:28 PM), <http://spectrumlocalnews.com/nys/capital-region/news/2017/02/22/hoosick-falls-settlement-meeting> (noting that the village's board of overseers tabled a decision on the settlement “due to overwhelming opposition”).

⁹⁷ See Amanda Fries, *Village Balks at PFOA Hoosick Falls Payout: Facing Show of Opposition, Hoosick Falls Board Tables Vote on \$1.04M Settlement*, TIMESUNION (Feb. 27, 2017, 10:55 PM), <http://www.timesunion.com/local/article/Village-balks-at-PFOA-Hoosick-Falls-payout-10964257.php>.

⁹⁸ Wendy Liberatore, *Hoosick Falls Board Votes to Proceed with PFOA Lawsuits*, TIMES UNION (Jan. 9, 2018, 10:49 PM), <https://www.timesunion.com/news/article/Village-officials-vote-to-sue-PFOA-polluters-12486059.php>.

3. Possibility for Tort Liability to Step In

In the wake of Hoosick Falls's crisis and PFOA contamination scares across the country, various legislative proposals have been made and executive action taken to address shortcomings now perceived in water-quality governance mechanisms. A first-level response has been to authorize stricter regulation of PFOA. By declaring PFOA a hazardous substance in January 2016, for example, New York Governor Andrew Cuomo made state regulation of the compound possible, even though scientific uncertainty as to the chemical's health effects officially persists at the federal level.⁹⁹ In 2017, New Jersey, another state that has dealt with PFOA contamination discoveries, became the first state to regulate PFOA at a binding Maximum Contaminant Level of 14 ppt, a more conservative threshold than the 70 ppt lifetime advisory now recommended by the EPA.¹⁰⁰ These responses vividly illustrate how, once the uncertain risk posed by PFOA contamination is realized as an actual threat within a community, political will to bear greater regulatory costs emerges.

In Hoosick, the public uproar over the conflict between federal EPA and state environmental authorities forced state regulators to act and underlined the disconnect between regulators' tolerance for uncertain risk and the tolerance for such risk among affected community members. After Governor Cuomo issued emergency guidelines regarding PFOA in Hoosick Falls, he suggested that miscommunication and misinformation had contributed to overblown public fears, seeming to imply that the level of anxiety in Hoosick outstripped the actual risk to which the PFOA contamination subjected villagers.¹⁰¹ Yet Cuomo's characterization of public worries as overblown is difficult to square with the reality faced by Hoosick's residents. They have discovered that the water in which they bathed, cooked their food, and washed their belongings—and which they drank for at least the previous ten years—has been increasingly contaminated by a com-

⁹⁹ See *supra* notes 51–52 and accompanying text.

¹⁰⁰ See Press Release, N.J. Dep't of Env'tl. Conservation, Christie Administration Takes Action to Enhance Protection of New Jersey's Drinking Water (Nov. 1, 2017), https://www.nj.gov/dep/newsrel/2017/17_0104.htm.

¹⁰¹ See Brendan J. Lyons & Casey Seiler, *New York to Declare Superfund Site in Hoosick Falls over Water Pollution: Private Meeting in Governor's Executive Office Wednesday Afternoon*, TIMES UNION (Jan. 28, 2016, 9:35 AM), <http://www.timesunion.com/local/article/Governor-meets-with-Hoosick-Falls-officials-over-6788137.php> (quoting Governor Cuomo as saying, "In Hoosick Falls there was misinformation, conflicting information, and it appeared to be a situation that was getting out of control, and people [were] getting anxious. After anxiety comes anger, and the misinformation in and of itself can be destructive."). Governor Cuomo also likened the situation to "the state's recent experiences with the Ebola virus and Legionnaires Disease, situations in which the impact of very real health threats were worsened by sometimes overblown public fears." *Id.*

pound the EPA Science Advisory Board has found to be a likely carcinogen in humans, with various other potential health effects.¹⁰² Sheltered from the direct effects of contamination—not only in terms of health, but also in terms of *politics*—officials like Cuomo as well as the industrial defendants may find it easier to focus on the uncertainty of PFOA's health risks (and effectively abdicate responsibility for regulating the compound on those grounds) than on individuals whose bodies now contain elevated levels of PFOA.¹⁰³ This divergence between *ex ante* regulators' and officials' appreciation of uncertain risk and that of those whose lives are directly touched by the risk speaks to a fundamental disconnect between the *ex ante* regulatory systems in place and the individuals they are meant to protect.

While carrying the potential to decrease the likelihood of another Hoosick Falls-type contamination, calls to invest in water-system infrastructure and to beef up state and federal water-quality regulatory laws ultimately have a limited capacity to prevent such crises—for the scope of potential risk to be regulated will almost inevitably exceed the finite resources invested in *ex ante* regulation. There is a widely accepted need for the two-billion-dollar investment in clean-water infrastructure and water-quality protection that Governor Cuomo proposed in his State of the State address, for example,¹⁰⁴ but even a package that provides for municipal filtration for regulated *and* unregulated contaminants, as Cuomo promises, doesn't provide a safeguard against the range of potential contaminants which are neither regulated nor unregulated by the federal government—that is, those that have not even been identified by the government.¹⁰⁵ A bill proposed by state Republicans to create a state “Water Quality Institute”—which would make recommendations to the state Department of Health regarding water quality standards that might be

¹⁰² See *infra* Part II.

¹⁰³ Cf. Dana, *supra* note 4, at 5–7, 13–16 (outlining what he calls the “abdication trap,” discussing and dismissing as its cause “a normative view on the part of state leaders that local water quality is simply an issue for localities,” and arguing that abdication is ultimately a result of political calculus).

¹⁰⁴ See, e.g., Elizabeth Moran, *Investing in Clean Water*, ENVTL. ADVOCATES N.Y. (Feb. 27, 2017, 6:16 PM), <https://www.eany.org/our-work/team-blogs/investing-clean-water> (observing “[p]oliticians from both sides of the aisle . . . one-upping each other to offer billions in funding for water projects”).

¹⁰⁵ For the Governor's proposal, see Press Release, Governor's Press Office, N.Y. State, Governor Cuomo Presents the 17th Proposal of 2017 State of the State: Invest \$2 Billion in Clean Water Infrastructure and Water Quality Protection (Jan. 9, 2017), <https://www.governor.ny.gov/news/governor-cuomo-presents-17th-proposal-2017-state-state-invest-2-billion-clean-water>. The plan calls for “[i]nstalling advanced treatment and filtration systems to treat and remove both regulated and unregulated contaminants found in drinking water.” *Id.*

more rigorous than the baseline federal standard—directly responds to the perceived regulatory failing in Hoosick Falls by giving the state a means to force regulation of contaminants for which regulation would only be optional under federal law.¹⁰⁶ Yet, a regulatory body of this kind will face the same sort of constraints that the EPA standard-setters face: Since it lacks the time and resources to set standards for *all* potential risks, the Institute will have to prioritize its research and set thresholds of uncertainty that maximize its regulatory benefits. Further, the Institute will have to make such prioritization decisions based on imperfect information about potential risks. The scientific uncertainty surrounding a vast number of compounds like PFOA makes the public health threat posed by these compounds almost impossible to satisfactorily account for through *ex ante* public regulation.

As Hoosick Falls's experience suggests, public liability mechanisms do not sufficiently deter conduct such that the slack created by scientifically constrained *ex ante* regulatory mechanisms is taken up. One response might be to revise or reform CERCLA and the CWA to increase their effectiveness.¹⁰⁷ While such proposals are certainly worth considering, this paper does not focus on CERCLA and/or CWA reform, for two main reasons. First, the political will necessary for such reforms is lacking. Notably, in the responses to Hoosick Falls, no proposals have suggested changes to the CWA or its implementation, nor to Superfund legislation.¹⁰⁸ The political focus has instead been on investing in local regulators and water infrastructure and setting more rigorous health standards for unregulated and regulated contaminants.¹⁰⁹ Absent a highly publicized scandal surrounding

¹⁰⁶ See S. 3773, 2017 Leg., 238th Sess. (N.Y. 2017); *see also* *Senate Bill S3773*, N.Y. Sr. SENATE, <https://www.nysenate.gov/legislation/bills/2017/S3773> (last visited Aug. 16, 2018) (providing additional information, including the bill's current status).

¹⁰⁷ See, e.g., Lyons, *supra* note 34, at 335–44 (arguing that “the liability system [of CERCLA] ought to be jettisoned” in favor of a “tax based scheme,” under which “the transaction costs which currently result from the operation of the CERCLA liability system would be eliminated”).

¹⁰⁸ A Riverkeeper white paper treating PFOA contamination in the New York city of Newburgh as a case study does, in fact, highlight shortcomings in the state's CWA implementation, RIVERKEEPER, *supra* note 38, at 25, 32–33, but the fact that neither the water infrastructure budget proposal by state Republicans nor that of Governor Cuomo propose investment in the NYSDEC, which administers the New York State Pollutant Discharge Elimination System CWA permitting program, indicates a political consensus that investment in local water management capacity and more rigorous standard setting are solutions prioritized over enhanced enforcement against polluters.

¹⁰⁹ See, e.g., S. 3772A, 2017 Leg., 238th Sess. (N.Y. 2017) (proposing bond measure to fund investments in local water infrastructure); N.Y. S. 3773 proposing creation of a “Water Quality Institute” to set state-specific water-quality standards); Press Release, Governor's Press Office, *supra* note 105 (proposing state regulation of regulated and

CERCLA or the CWA, generating the political will necessary for their revision could well prove a quixotic effort.

Second, statutory reform is unnecessary where potential avenues for imposing liability through tort law represent a more efficient, dynamic, and contextually responsive method of forcing information development and care by potential polluters—and moreover, a method that satisfies the corrective justice needs of communities contaminated by PFOA-like compounds. Recall Shavell's insight that when information about risk is an issue for public regulators, private litigation may be a preferable means to regulate industries, for those industries may be in a better position to anticipate and internalize the costs of potential risks.¹¹⁰ Neither CERCLA, the CWA, nor common-law tort liability has so far forced companies to internalize the risk of compounds such as PFOA, but the idea that companies may have an advantage in information gathering that public regulators lack is supported by the history surrounding PFOA. Saint-Gobain began phasing out PFOA use in 2003, three years before the EPA memorialized its stewardship plan with the leading producers of the compound;¹¹¹ the EPA's enforcement action against DuPont in 2008 was predicated on a finding that DuPont had failed to report health risks it had discovered were associated with PFOA.¹¹² Both facts suggest that companies already have a sense of the liability risks commercial chemicals like PFOA may pose and that incentivizing further information production, collection, and sharing among companies by more consistently imposing common-law tort liability for injuries resulting from chemical contamination is a viable method to increase deterrence.

Hoosick Falls not only brings into relief the value of private tort litigation as a deterrent, but also as a tool to fulfill compensatory functions not served by CERCLA. As noted earlier, CERCLA remedial clean-up will not compensate residents for property value depreciation or for a long-term medical monitoring program.¹¹³ Further, until the remedial plan is finalized, residents cannot be sure how certain details of remediation, such as how privately-owned wells will be accounted for, will be finalized. Thus, efforts of private agents to recover losses not covered under CERCLA, or uncertain to be cov-

unregulated contaminants and investment in local water management infrastructure and systems).

¹¹⁰ See Shavell, *supra* note 16, at 271–72.

¹¹¹ See *supra* note 91 and accompanying text (regarding Saint-Gobain); *supra* note 65 and accompanying text (regarding EPA stewardship plan).

¹¹² See *supra* note 66 and accompanying text. It is not clear when DuPont first became aware of those findings.

¹¹³ See *supra* Section II.B.2.

ered by it, were represented in the class-action lawsuit raised by residents seeking recovery for lost property value, consequential damages to fund a medical monitoring program, a testing and treatment protocol for private well owners, and a commitment by defendant companies to “take all necessary steps to remediate the property and/or residences of Plaintiffs and the classes to eliminate the presence of PFOA.”¹¹⁴ While the parties have stipulated to stay claims which might be preempted by the remedial plan adopted under CERCLA (those involving private well testing and requiring the defendants to also “take all necessary steps to remediate the property”),¹¹⁵ the biomonitoring and property loss claims have been allowed to proceed, indicating an understanding by the court and involved parties that this element of compensation may not be preempted by federal regulatory programs.¹¹⁶

The opportunity to recover biomonitoring and property loss damages from Potentially Responsible Parties serves not only a corrective-justice function that CERCLA cannot fulfill, but also helps capture a valuation of uncertain risk that public regulatory regimes consistently fail to appreciate. CERCLA’s biomonitoring provisions limit the extent to which biomonitoring costs will be borne by private defendants, particularly where the biomonitoring in question seems likely to track contamination by a chemical that ultimately proves to cause only insignificant harm.¹¹⁷ Yet such political hesitance to put this cost on private parties means that when a situation like Hoosick Falls arises, resources for a federal- or state-run biomonitoring program are difficult to muster. Liability for biomonitoring due to private tort litigation can correct for standard errors in public foresight regarding the costs the public will bear to address uncertain risks. Once individuals are contaminated by industrial compounds that have uncertain but significantly probable health effects, support for providing these individuals with medical care to manage whatever health effects may emerge is widespread.¹¹⁸ Yet regulatory institutions repeatedly fail to

¹¹⁴ Master Consol. Class Action Complaint, *supra* note 57, at ¶ C.

¹¹⁵ *Id.*

¹¹⁶ Memorandum – Decision and Order at 255 n.3, *Baker v. Saint-Gobain Performance Plastics Corp.*, 232 F. Supp. 3d 233 (N.D.N.Y. 2017) (describing the stipulation to stay certain of plaintiffs’ complaints until April 28, 2017).

¹¹⁷ See, e.g., *Price v. U.S. Navy*, 39 F.3d 1011, 1017 (9th Cir. 1994) (holding that the cost of medical monitoring is not a “response cost” under CERCLA); see also Anthony R. Laratta & Brian S. Paszaman, *Diagnosing Medical Monitoring Costs Under CERCLA: Checking for a Pulse*, 7 VILL. ENVTL. L.J. 81, 84–101 (1996) (discussing the ambiguity in CERCLA’s statutory language as to whether medical monitoring constitutes a “necessary cost of response” and analyzing the caselaw finding that it does not).

¹¹⁸ See, e.g., *Rekhi*, *supra* note 58 (describing agreement between rival congressional candidates regarding the need for aid to Hoosick residents); *Waldman*, *supra* note 58

account for the cost of such precautionary care *ex ante*. More consistent liability for biomonitoring damages in tort could force internalization of such costs, perhaps in conjunction with the development of an insurance market to fund biomonitoring damages, and thereby correct for this foresight error.¹¹⁹ Moreover, whereas CERCLA liability can serve to shield corporate defendants from some of the moral opprobrium flowing from culpability as a polluter, a tort lawsuit forces the question of culpability and can bring to public awareness information about company behavior that sheds light on corporate practices which may merit future policing. These effects further incentivize companies to internalize costs in a way that CERCLA does not, and they give individuals a more powerful lever to act upon PRPs, who currently are likely to exercise greater influence over the Superfund process whereby the remedy individuals receive is shaped.

The efficacy of tort liability as a backstop to regulation is only as good as the likelihood that valid suits can be brought and liability can be imposed. The legal issues that hindered environmental tort suits in the past remain obstacles to litigative regulation today. Insights from the previous sections, however, support an approach to definitions of injury that would make such claims viable and allow them to serve a much-needed regulatory function.

III

PUTTING A COST ON UNCERTAIN RISKS: REDEFINING INJURY IN WATER-CONTAMINATION TORTS

The core legal questions at the motion-to-dismiss stage of the Hoosick Falls class action were characteristic of the doctrinal issues likely to arise in a tort suit alleging contamination by chemicals with uncertain, though widely feared, health risks. On theories of negligence, strict liability, nuisance, and trespass, plaintiffs in Hoosick Falls alleged property damage in the form of contamination of their drinking water, which gave rise to remediation costs as well as damages for loss in property values.¹²⁰ A subgroup of plaintiffs also claimed personal injury resulting from “damage at the cellular and

(discussing Senator Gillibrand’s pledge to help Hoosick Falls residents obtain biomonitoring).

¹¹⁹ See BRYCE L. FRIEDMAN, MEDICAL MONITORING AND GENERAL LIABILITY INSURANCE: AN UNCERTAIN PROGNOSIS FOR COVERAGE (2010), <http://www.stblaw.com/docs/default-source/cold-fusion-existing-content/publications/pub1069.pdf?sfvrsn=2> (discussing issues with compelling general liability insurers to cover medical monitoring claims against their policyholders, an area of law that remains unsettled. Its focus on these claims suggests there may be demand for an insurance market in which such claims are within coverage.).

¹²⁰ Master Consol. Class Action Complaint, *supra* note 57, at ¶¶ 154–84.

genetic level by the accumulation of PFOA in their bodies,” for which they sought consequential damages and/or injunctive relief for “a biomonitoring program . . . reasonably tailored to the exposure risks posed by PFOA.”¹²¹ Defendants responded that neither claim was viable, as plaintiffs could not demonstrate a legally cognizable injury to either their property or their person as a result of PFOA contamination.¹²² On the property side, Saint-Gobain and Honeywell argued that PFOA contamination had caused no physical injury to property, only economic damages; thus, plaintiffs’ property damages claims were foreclosed.¹²³ On the personal injury side, the defendants argued that simple accumulation of PFOA within the body, without more, constituted only a potential risk for harm, not the present injury necessary to open the door to medical monitoring damages.¹²⁴

In making these arguments, the defendants capitalized on the aspects of tort law which limit the ability to recover from contamination by a chemical such as PFOA. Tort law traditionally resists imposing liability on parties for harms deemed speculative, out of a concern that doing so will chill socially productive activity for which we are willing to tolerate the potential risk.¹²⁵ One way of doing so is to demand physical injury before intangible damages, such as for emotional distress or economic loss, may attach. Of course, in the case of PFOA contamination, this aspect of tort law makes recovery difficult, for the science behind PFOA suggests only *probabilities* of harm. Further, by the time physical injury from PFOA can be shown, it will be highly difficult to establish the causal link between defendant conduct and plaintiff injury necessary for liability. Thus, private tort litigation that hews strictly to traditional liability-limiting principles fosters the same sort of myopia regarding uncertain risks that leads to under-regulation of chemicals like PFOA by public regulatory authorities. Tort law cannot supplement the public regulatory scheme when construed this way.

¹²¹ *Id.* ¶¶ 165, 187–88.

¹²² Memorandum of Law in Support of Defendants’ Motion to Dismiss or Stay the Master Consol. Class Action Complaint at 30–40, *Baker v. Saint-Gobain Performance Plastics Corp.*, No. 1:16-CV-917 (LEK/DJS) (N.D.N.Y. Sept. 26, 2016), 2016 WL 9405961.

¹²³ *Id.* at 31–35.

¹²⁴ *Id.* at 38–40.

¹²⁵ See, for example, Vincent R. Johnson’s discussion of the difficult line-drawing courts assessing data-breach damages claims must engage in, given the potential for vast noneconomic damages that could bankrupt valuable enterprises. Vincent R. Johnson, *Cybersecurity, Identity Theft, and the Limits of Tort Liability*, 57 S.C. L. REV. 255, 260 (2005).

A. *Judge Kahn's Approach in Baker v. Saint-Gobain*

The approach by Judge Kahn in the early stages of the *Baker v. Saint-Gobain* litigation suggests how judicial flexibility in conceptualizing requisite injury in water-contamination torts might allow private tort litigation to be a more responsive regulatory mechanism. In ruling on the defendants' motion to dismiss the plaintiffs' complaint, Judge Kahn resisted arguments that PFOA contamination of groundwater and individuals' bodies could not constitute a legally cognizable injury. Addressing defendants' assertion that the property damages were barred because they were purely economic, like the damages for which plaintiff shop owners were not permitted to collect in *532 Madison Avenue Gourmet Foods, Inc. v. Finlandia Center, Inc.*,¹²⁶ the court focused on the *532 Madison* court's discussion of how, rather than a "talismanic requirement for plaintiffs to allege physical injury to their property," the scope of legal duty limits potential damages.¹²⁷ Judge Kahn concluded that "however . . . duty is ultimately defined in pollution cases, this policy determination must include a duty not to pollute a plaintiff's drinking water."¹²⁸ Additionally, Judge Kahn pointed to a line of New York environmental cases allowing recovery for purely "stigma" damages—i.e., damages resulting when fear about exposure to a potential health hazard causes the market value of real property to diminish. He held that these cases establish the principle that pure stigma damages are appropriate where the stigma is traceable to defendant conduct and that conduct in turn is connected with the depreciated property in question.¹²⁹ And even if *532 Madison* foreclosed recovery in contamination suits (which Judge Kahn did not read it as doing), the "root injury" of the plaintiffs' complaint—the loss of their potable water supply—was "not fairly categorized as purely economic in nature"; thus, plaintiffs' alleged stigma damages attached to a noneconomic injury, meaning that plaintiffs' claim could survive even under defendants' interpretation of *532 Madison*.¹³⁰

Judge Kahn also took a more flexible approach in his analysis of the plaintiffs' medical monitoring claims. Citing Second Circuit precedent, the court held that blood accumulation of a toxin for which there is a rational basis for fear of future health effects constitutes injury

¹²⁶ 750 N.E.2d 1097 (N.Y. 2001).

¹²⁷ *Baker v. Saint-Gobain Performance Plastics Corp.*, 232 F. Supp. 3d 233, 245 (N.D.N.Y. 2017).

¹²⁸ *Id.*

¹²⁹ *Id.* at 246.

¹³⁰ *Id.*

sufficient for medical monitoring damages.¹³¹ The court's opinion notes the absurdity in requiring manifestation of physical symptoms in order to qualify for a medical monitoring remedy: Medical monitoring's purpose is to detect diseases *before* a patient manifests his or her symptoms, so as to permit earlier, more effective treatment.¹³² Notably, Judge Kahn argued that the ability to recover such damages should not turn on a requirement of an already existing tort cause of action but should be determined through an evaluation of "whether, because of the defendant's actions, the monitoring requested is medically indicated in the plaintiff's situation."¹³³ This position rejects a formalistic cabining of legally cognizable injury through the imposition of a physical injury requirement. Instead, it offers a functional definition that recognizes present-day costs created by the imposition of uncertain risks on the human body. For Judge Kahn, this definition seemed demanded by principles of equity:

If a plaintiff can show duty, breach, and causation, it seems incredible that there would not be a legal injury . . . : she must choose to either bear the cost of medical testing herself, which could end up saving her life, or wait to recover from the defendant until she is already sick, which could be too late to provide effective treatment.¹³⁴

And although acknowledging concerns "about a deluge of frivolous litigation," the court affirmed that "the judiciary should not retreat from a flood of litigation when the claims it carries have merit."¹³⁵

B. The Missing Policy Argument in Baker v. Saint-Gobain

Judge Kahn's matter-of-fact conclusion about manufacturers' duty not to pollute the water supply of surrounding community members is intuitive, but it does not necessarily follow that such a duty gives rise to liability for property-value depreciation tied to the contamination. In fact, another court could have easily argued that

¹³¹ *Id.* at 252 (citing the interpretation of *Caronia v. Philip Morris USA, Inc.*, 748 F.3d 454 (2d Cir. 2014) in *In re World Trade Ctr. Lower Manhattan Disaster Site Litig.*, 758 F.3d 202, 213 (2d Cir. 2014) as supporting this holding).

¹³² *Id.*

¹³³ This definition of the present-injury requirement draws from a note arguing that medical monitoring damages can be limited by such a functional test. *Id.* at 254 (citing Allen T. Slagel, Note, *Medical Surveillance Damages: A Solution to the Inadequate Compensation of Toxic Tort Victims*, 63 IND. L.J. 849, 872 (1987)). While proving the elements of this test might require extensive expert testimony, the test would seem to provide an effective constraint on medical monitoring liability. At the motion-to-dismiss stage, a court could plausibly make a first-look determination as to whether medical monitoring claims have a chance of surviving this test, based on the pleadings.

¹³⁴ *Id.*

¹³⁵ *Id.* at 255.

Superfund's authority to compel remediation and long-term restoration of a contaminated water supply indicates legislative endorsement of a particular distributional scheme that would be improperly disrupted by judicial indulgence of individual claims for stigma or medical-monitoring damages *à la tort*.¹³⁶ Such a court might well have considered questions of appropriate risk allocation and possibilities of insurer-like liability before choosing *not*, as a matter of law, to hold defendants liable for economic depreciation caused by the stigma from contamination or for medical monitoring. Judge Kahn's opinion doesn't fully engage with such policy questions. Instead, it recognizes stigma damages as appropriate based on a strand of New York case law, common sense, and a sense of justice. Likewise, the court's discussion of medical monitoring damages rejects a traditional physical/property injury requirement for medical-monitoring eligibility without meaningful discussion of the concerns about allocation in doing so.

My earlier analysis of the regulatory shortcomings evidenced in Hoosick Falls's contamination crisis, however, provides the strong policy reasons for extending liability in the way Judge Kahn did in *Baker v. Saint-Gobain*. While others have recognized that expansion of environmental tort liability can be a means to enhance pollution deterrence,¹³⁷ the Hoosick Falls case study indicates precisely *why*, in the context of drinking water regulation, enhanced deterrence via common-law remedies is necessary: The insufficiencies of the current public regulatory system demand that tort law step in and enhance deterrence by holding polluters liable for stigmatic damages and medical monitoring. Given that firms which use such chemicals may have certain informational advantages as to a compound's potential harmfulness *and* have access to the public health advisories issued by public regulators regarding various contaminants, imposing liability so

¹³⁶ See, e.g., Brief of the Chamber of Commerce, Pharm. Research & Mfrs. of Am., & Bus. Council of N.Y. State, Inc. at 10–11, *Benoit v. Saint-Gobain*, Nos. 17-3941(L), 17-3943 (CON), 17-3944 (CON), 17-3945 (CON), 17-3946 (CON), 17-3947 (CON), 17-3948 (CON), 17-3949 (CON), 17-3950 (CON), 17-3952 (CON), 17-3953 (CON), 17-3954 (CON), 17-3955 (CON), 17-3956 (CON), 17-3957 (CON), 17-3958 (CON) (2d Cir. Mar. 1, 2018) (arguing that the district court's reasoning violated all policy reasons given by courts across the country for prohibiting medical monitoring damages absent physical symptoms); Timothy J. Muldowney & Kendall W. Harrison, *Stigma Damages: Property Damage and the Risk of Fear*, 62 DEF. COUNSEL J. 525, 537 (1995) (analyzing judicial treatment of stigma damages and noting the important questions of risk-allocation they present).

¹³⁷ See, e.g., *In re Paoli R.R. Yard PCB Litig.*, 916 F.2d 829, 852 (3d Cir. 1990) ("Allowing plaintiffs to recover the cost of [medical monitoring] deters irresponsible discharge of toxic chemicals by defendants."); Abelkop, *supra* note 6 (arguing that tort law is a valuable supplement to public regulatory schemes and thus preemption of environmental torts should be limited).

that risk is allocated between public regulators and private firms is both fair and in the public interest.¹³⁸

Judge Kahn's opinion does not make or rely upon this argument, nor does it engage with the crucial question as to what limiting principles ought to guide a court in determining whether a firm should be liable for stigma damages—a question that remains unanswered by New York courts. By contrast, he does provide a workable test for constraining medical monitoring damages.¹³⁹ The one case that minimally engages with this question, *Crisculoa v. Power Auth. of N.Y.*, held that plaintiffs needed simply to establish that the installation of power lines over their property decreased its market value, regardless of the scientific certitude or reasonableness of the fears which led to such depreciation.¹⁴⁰ Such sweeping liability is both unwise and unfair; courts that wish to recognize stigma damages for contamination by compounds such as PFOA will need to define a level of reasonably possible health harms that permit a stigma damages claim to go forward. One way they might do so would be to allow claims for contamination by compounds that have in some way been subject to regulatory agency scrutiny (because of a legislative directive to study, as the EPA was ordered to study PFOA in the FDCA, for example, or through non-binding health guidance, as in the PFOA Provisional Health Advisory issued by EPA in 2009, etc.) that has not yet been rebutted.¹⁴¹ This would capture the present-day cost of uncertain risks which public regulators are not yet ready to take on but would screen out compounds at the outer limits of potential risk.

Enforcing stigma and medical monitoring damages more consistently in private tort litigation would serve the traditional triple function of tort law: deterrence, compensation of harmed parties, and corrective justice.¹⁴² While such compensation may be demanded by principles of equity, it also would have valuable ripple effects in prompting greater industry responsibility for compounds with uncer-

¹³⁸ Carl Cranor, *Information Generation and Use Under Proposition 65: Model Provisions for Other Postmarket Laws?*, 83 IND. L.J. 609 (2008), argues that provisions in California's Proposition 65, which shift the burden of knowledge production from regulators to manufacturers, have proven a workable and more health-protective law. I suggest here that a more flexible approach to common-law water contamination torts could have a similarly beneficial burden-shifting effect.

¹³⁹ See *supra* note 133 and accompanying text.

¹⁴⁰ 621 N.E.2d 1195, 1197 (N.Y. 1993).

¹⁴¹ Contrast this limiting principle with the one proposed in Wedeking, *supra* note 6 (arguing that MCLs should provide a bright-line threshold for injury in water-contamination torts).

¹⁴² See Catharine Pierce Wells, *Corrective Justice and Corporate Tort Liability*, 69 S. CAL. L. REV. 1769, 1769 (1996) (referencing the "three basic goals of tort law" taught by late-twentieth-century law teachers).

tain risks. If firms find themselves consistently on the hook for medical monitoring and property devaluation “stigma” damages, they have an incentive to internalize these costs.¹⁴³ If the costs prove to go beyond firms’ ability to pay, the development of an insurance market for such damages becomes more likely. A robust insurance market can benefit safety as insurers collect and aggregate information from customer firms and incentivize risk-prevention practices through differentiated premiums.¹⁴⁴ Given the inevitable resource constraints on public regulatory structures, shifting risk allocation and control toward responsible private actors in this way would be an efficient method to address the social ill posed by the use of chemicals such as PFOA.

My analysis of drinking-water regulation thus provides a host of policy justifications for extending liability in water-contamination torts beyond the traditional doctrinal limits. But I also want to highlight a more theoretical significance for these extensions of liability. By recognizing purely economic “stigma” damages as a valid claim (subject to the limiting principle I propose), courts would put a present-day cost on uncertain risk that we as a public generally struggle to account for *ex ante*. By taking a flexible approach to legally cognizable injury, courts locate a present cost for uncertain future risks in a discrete remedy: medical monitoring damages. Courts that expand their definition of injury in the water-contamination context thus provide a curative to the regulatory myopia that undervalues the costs of future uncertain risk. Through the cost of stigma damages and medical monitoring, they make concrete the impact on individuals of possibly harmful chemicals, even while public regulators outwardly declare that the risk of those chemicals is scientifically uncertain. Building on Catharine Pierce Wells’s pragmatist conception of tort law’s corrective justice function and her idea that trial results enforce “community standards of financial responsibility and just compensa-

¹⁴³ Russell M. Gold, *Compensation’s Role in Deterrence*, 91 NOTRE DAME L. REV. 1997 (2016), notes further that the reputational costs of compensatory litigation add further deterrent value to such lawsuits.

¹⁴⁴ See Michael G. Faure, *The Complementary Roles of Liability, Regulation and Insurance in Safety Management: Theory and Practice*, 17 J. RISK RES. 689, 697 (2014) (explaining how insurers can control the moral hazard of those they insure). However, the development of such a market is, admittedly, uncertain. The main attention put to medical monitoring liability insurance claims seems to come from counsel for insurers who highlight the legal arguments for why medical monitoring damages should not fall within general liability insurance. See, e.g., FRIEDMAN, *supra* note 119; Gwen M. Rogers, *Medical Monitoring, Trigger of Coverage Analysis, and the Duty to Defend*, 13 GEO. MASON L. REV. 869 (2005) (arguing that courts should find that insurers have a duty to defend medical monitoring claims).

tion,”¹⁴⁵ I contend that courts which recognize stigma damages and medical monitoring as legally cognizable injuries are in fact faithfully honoring the corrective justice role traditionally played by the common law. These damages claims represent imbalances in equities that people feel in the wake of a contamination event, and the adjudicatory process provides individuals with a critical platform to contest the general distributional scheme that has evolved out of political processes in which their particular interests were likely to have been devalued.

Indeed, as commentators debate the role of the precautionary principle and cost-benefit analysis in environmental regulatory regimes,¹⁴⁶ I contend that, in a country like the United States where a precautionary approach is disfavored by lawmakers creating ex ante standards, the courts are a crucial precautionary input. Private tort litigation can capture as costs the present-day outrage and real injury caused by uncertain risk. It is thus uniquely situated to correct for the systemic discounting of future risk that constitutes regulatory myopia. In recognizing a legally cognizable injury for uncertain risks, courts are in fact giving voice to individuals who feel the effects of uncertain risk in the present moment and are motivated to urge and force precaution via litigation that deters carelessness by polluters and demands proactive remedy. Tort litigation counters regulatory myopia by imposing a precautionary impulse that is otherwise politically unfeasible.

CONCLUSION

Judges faced with water-contamination torts need not sidestep the policy questions Judge Kahn avoided in his *Baker v. Saint-Gobain* decision. My analysis of the Hoosick Falls case study reveals that a flexible, though principled, conceptualization of injury in water-contamination torts is justified by the regulatory reality a court must consider when determining whether liability is appropriate. A more flexible conception of injury also permits courts to fulfill their crucially needed corrective justice role and, in so doing, provide a vehicle for precautionary impulses to act upon regulated industry and regulators. More consistent recovery in tort is not, by any means, a complete

¹⁴⁵ Catharine Pierce Wells, *Tort Law as Corrective Justice: A Pragmatic Justification for Jury Adjudication*, 88 MICH. L. REV. 2348, 2411 (1990).

¹⁴⁶ See, e.g., Frank B. Cross, *Paradoxical Perils of the Precautionary Principle*, 53 WASH. & LEE L. REV. 851 (1996); David M. Driesen, *Cost-Benefit Analysis and the Precautionary Principle: Can They Be Reconciled?*, 2013 MICH. ST. L. REV. 771 (2013); Daniel A. Farber, *Coping with Uncertainty: Cost-Benefit Analysis, the Precautionary Principle, and Climate Change*, 90 WASH. L. REV. 1659 (2015).

solution to the problems with drinking-water regulation in the United States. However, more consistent tort recovery *would* capture real social costs which are not being accounted for in the regulatory, industrial, and political processes currently driving public resource governance. In this way, private tort litigation could play the crucial role of forcing accountability.